

Work Order ID 86306

June-26-12 3:40:25 PM

86306

Page 1

Item ID: D350-591-133

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Aft Maintenance Step

Start Date: 26/06/2012 Start Qty: 400

4

6

Cust Item ID:

Required Date: 10/07/2012 Req'd Qty: 400

4

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/06/26

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2946	Rev B								
100		0.00							
100	DOCUMENT CONTROL								
DC		0.00							
Document Control	Memo								
	Photocopy bluefile and type labels as per PPP D350-591-133 CHG003								
110		0.00							
110	Large Fab								
Large Fab		0.00							
Large Fab	Memo								
	1-Cut D2622-120 extrusion to 62.06" long as per Dwg D2946								
	2-Deburr								
	Ensure that 57.09" minimum extrusion is kept and identify to be used for D350-591-215/-216.								

DAS
16
2-3

12/07/13
LB

MLJ 12-7-12

6 0

12.07.03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Start Date: 26/06/2012 **Start Qty:** 4.00

4

Customer:

Required Date: 10/07/2012 **Req'd Qty:** 4.00

4

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

QC6- Inspect dimensions to drawing

0.00

120

QC

Memo

0.00

Quality Control

130

0.00

130

Large Fab

Large Fab

Memo

0.00

Large Fab

1-Deburr and Bevel ends for welding

2-Weld (1) End Cap and (2) Lugs using Jig DT8440 as per Dwg D2946

A/R Aluminum Rod

3-Grind End Cap welds flush

140

QC9- Inspect visual per QSI004- Fusion Welds

0.00

140

QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
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Item Name: Aft Maintenance Step

Start Date: 26/06/2012 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/07/2012 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150 QC5- Inspect part completeness to step on W/O

0.00

150

QC

Memo

0.00

Quality Control

160 Chemical Conversion Coat per QSI005 4.1

0.00

160

HandFinish

Memo

0.00

Hand Finishing

170 QC3- Inspect Part Finish

0.00

170

QC

Memo

0.00

Quality Control

Sizelob

(56)

6 MG 12-7-9

6X 12/07/09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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N900040100

Setup Start

NS1

Revision ID:

Item Name: Aft Maintenance Step

Stop

NS2

Start Date: 26/06/2012 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/07/2012 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180

0.00

180

Large Fab

Large Fab

Memo

0.00

Large Fab

Remove alodine prior to welding. Weld end cap as per Dwg D2946. Grind end cap weld flush.

A/R AL ROD BATCH: 120854

6

φ

12.07.09

Ac 12.07.10

190

QC10- Inspect visual per QSI004- ground welds

0.00

190

QC

Memo

0.00

Quality Control

5/12/07/10

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.00

Quality Control

5/12/07/10

(x6)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Required Date: 10/07/2012 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

Chemical Conversion Coat per QSI005 4.1

0.00

210

HandFinish

Memo

0.00

Hand Finishing

6 HA 12-7-11

220

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

220

Powdercoat

Powder Coating

Memo

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

0.00

230

Wing Walk as per dwg QSI005 4.4 Batch 122322

0.00

230

HandFinish

Hand Finishing

Memo

0.00

6X M-F 12/6/116 φ 12-7-11

m121481

Dart Aerospace Ltd

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NS1

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NS2

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Start Date: 26/06/2012 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/07/2012 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

240

QC3- Inspect Part Finish

0.00

240

QC

Memo

0.00

Quality Control

QC 11/07/11

250

Pick Kit

0.00

250

Packaging

Memo

0.00

Packaging

6 12/07/13 AB

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Memo

0.00

Quality Control

DAS 16 12/10/13

QC

W/O:		WORK ORDER CHANGES					
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Revision ID:

Stop ***NS2***

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Start Date: 26/06/2012 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/07/2012 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

270

0.00

270

Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD350-591-133

Location:

PPP Rev:

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

[Handwritten signature]

12/7/18

MF

12-07-16

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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Picklist Print

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Page 1

Work Order ID: 86306

86306

Parent Item: D350-591-133

D350-591-133

Parent Item Name: Aft Maintenance Step

Start Date: 26/06/2012

Required Date: 10/07/2012

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:B05.10.14Modified step 10KJ/EC
IPP Rev:B06.07.19D2946 @ rev.b EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2622-120C		Manufactured	No			110	Each	148.6100	0.52	2.08			
D2622-120C									**			12.07.03	
Step Extrusion													

Location	Loc Qty	Loc Code
HALL	16.37	
46910	2	
64409	6	
66970	7.7	
68293	0.25	
72131	0.42	
WA	122.88	
81507	4.88	
83894	118	
WA013	9.36	
75781	2	
77612	7.36	

D2734 Manufactured No

130 Each 105.0000 2 8

D2734

Step End Plate

**

Location	Loc Qty	Loc Code
WA	105	
80682	8	
83322	22	
84563	75	

6+6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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Page 2

Work Order ID: 86306

Parent Item: D350-591-133

Parent Item Name: Aft Maintenance Step

86306

D350-591-133

Start Date: 26/06/2012

Required Date: 10/07/2012

Start Qty: 4.00

Required Qty: 4.00

D2944

Manufactured No

130

Each

22.0000

2

8

D2944

Step Mounting Plate

**

12.07.04

Location

Loc Qty

Loc Code

WA

12

83845

12

WA018

10

73427

4

82109

6

AN4-11A

Purchased

No

250

Each

264.0000

4

16 24

AN4-11A

Bolt

**

23

Location

Loc Qty

Loc Code

ST356

264

118706

14

120731

100

121243

50

121708

100

AN4-14A

Purchased

No

250

Each

616.0000

8

32 48

AN4-14A

Bolt

**

23

12/07/13

Location

Loc Qty

Loc Code

357

81

121349

81

ST357

535

120187

13

120769

1

121068

17

121708

4

122141

500

122141

June-26-12 3:40:30 PM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Page 3

Work Order ID: 86306

Parent Item: D350-591-133

Parent Item Name: Aft Maintenance Step

86306

D350-591-133

Start Date: 26/06/2012

Required Date: 10/07/2012

Start Qty: 4.00

Required Qty: 4.00

AN4-16A

Purchased

No

250

Each

167.0000

8

32 48

**

AN4-16A

Bolt

Location

Loc Qty

Loc Code

ST358

167

120498

14

121060

28

121444

75

121541

50

121444

AN4-7A

Purchased

No

250

Each

620.0000

2

8 12

**

AN4-7A

Bolt

Location

Loc Qty

Loc Code

ST356

620

117514

20

120770

100

122141

500

120770

AN960JD416

NAS1149D0463J

Purchased

No

250

Each

31.0000

14

56 84

**

AN960JD416

Washer

Location

Loc Qty

Loc Code

ST351

31

116289

10

119097

21

121912

D2230-1

Manufactured

No

250

Each

268.0000

4

16 24

**

D2230-1

Lug

Location

Loc Qty

Loc Code

ST480

268

83273

28

84135

40

84136

200

84135

June-26-12 3:40:30 PM

Shop Packet Print

Page 3

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Page 4

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Parent Item Name: Aft Maintenance Step

86306

D350-591-133

Start Date: 26/06/2012

Required Date: 10/07/2012

Start Qty: 4.00

Required Qty: 4.00

D2230-3

Manufactured No

250 Each

186.0000

41
**

16 24

✓

JB

50

D2230-3

Aug

Location

Loc Qty

Loc Code

ST480

186

83261

2

84133

184

D2732

Manufactured No

250 f

524.0000

2

**

84133

8 12

✓

JB

12/07/13

D2732

Rubber Extrusion

Location

Loc Qty

Loc Code

ST410

524

70987

28

83560

496

83560

D2856-400

Manufactured No

250 f

175.1425

1.26

5.04

✓

**

JB

12/07/11

D2856-400

Abrasion Strip

Location

Loc Qty

Loc Code

ST403

165.698

81875

165.698

ST409

9.4445

63735

0.6696

68076

0.3149

71164

8.46

81875

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Shop Packet Print

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Dart Aerospace Ltd

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Parent Item: D350-591-133

D350-591-133

Parent Item Name: Aft Maintenance Step

Start Date: 26/06/2012

Required Date: 10/07/2012

Start Qty: 4.00

Required Qty: 4.00

D2945

Manufactured No

250

Each

16.0000

D2945

Step Mounting Plate

**

Location

Loc Qty

Loc Code

ST022

16

79056

6

83911

10

Purchased

No

250

Each

2.026.000

MS2104214

MS2104214

Nut

Location

Loc Qty

Loc Code

ST300

2026

119075

116

121011

193

121444

1417

121652

300

**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

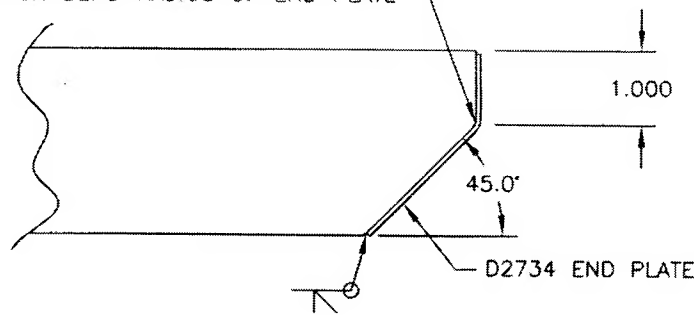
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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ROUND CORNER OF EXTRUSION TO
MATCH BEND RADIUS OF END PLATE



TYPICAL STEP END DETAIL
NOT TO SCALE

D2946 STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY
D2946	Step Assembly	X
D2622-63	STEP EXTRUSION*	1
D2734	END PLATE	2
D2944	STEP MOUNTING PLATE	2

*cut per drawing

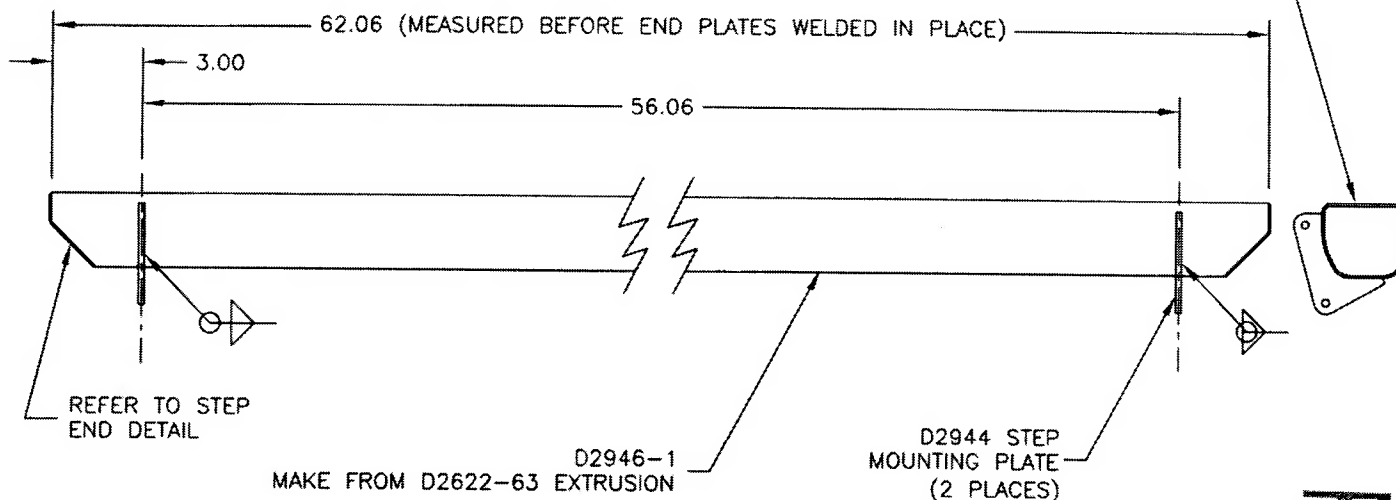
NOTE: ALL WELDS SHALL BE
100% VISUALLY
INSPECTED BY A
QUALIFIED INSPECTOR
PER DART QSI 004

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER

NO. *06306 MCT*
12/06/26

APPLY BLACK ANTI-SKID
ON TOP SURFACE TO
BOTTOM OF TOP RADIUS



D2946-041 STEP ASSEMBLY

D2946 STEP ASSEMBLY

- 1) MAKE FROM D2622 STEP EXTRUSION
- 2) WELD PER DART QSI 004
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT ENTIRE ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

DESIGN	CP	DRAWN BY	PH	DART AEROSPACE LTD
CHECKED	<i>#</i>	APPROVED	<i>#</i>	HAWKESBURY, ONTARIO, CANADA
DATE	05.11.14	TITLE	D2946	REV. B
		STEP ASSEMBLY	NEW ISSUE	SHEET 1 OF 1
		UPDATE FINISHING NOTE		SCALE 1:6

RELEASED
05.11.28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

5. PARTS LIST

Qty -111A	Qty -113	Qty -115	Qty -117A	Qty -119	Qty -133	Part Number	Description
X						D350-591-111A	<i>Heli-Access-Step</i> ™, Long Step – High Skid
	X					D350-591-113	<i>Heli-Access-Step</i> ™, Short Step – High Skid
		X				D350-591-115	<i>Heli-Access-Step</i> ™, Short Step – Low Skid
			X			D350-591-117A	<i>Heli-Access-Step</i> ™, Pre-Flight Step
				X		D350-591-119	<i>Heli-Access-Step</i> ™, Long Step – Low Skid
					X	D350-591-133	<i>Heli-Access-Step</i> ™, Aft Maintenance Step
	1					D2310	STEP ASSEMBLY (HIGH-SHORT)
1						D2311	STEP ASSEMBLY (HIGH-LONG)
		1				D2354	STEP ASSEMBLY (LOW-SHORT)
				1		D2355	STEP ASSEMBLY (LOW-LONG)
					1	D2946-041	STEP ASSEMBLY (MAINTENANCE)
4	2	2	2	2		D2171	CLAMP
4	2	2	2	2		D2182B035	CUSHION
					4	D2230-1	MOUNTING LUG
					4	D2230-3	MOUNTING LUG
8	4	4	4	4		D2274	RADIUS BLOCK
			1			D2362-041	SUPPORT BRACKET
2	1			1		D2362-3	SUPPORT BRACKET
		1				D2362-5	SUPPORT BRACKET
2	1	1	1	1	2	D2856-400-720	ABRASION STRIP
					1	D2945	MOUNTING PLATE
2	2	2		2		AN3-37A	BOLT
					2	AN4-7A	BOLT
					4	AN4-11A	BOLT
					8	AN4-14A	BOLT
		4				AN4-16A	BOLT
8	4			4		AN4-20A	BOLT
1	1	1	4	1		AN4-22A	BOLT
4	4	4		4		AN960JD10	WASHER
10	6	2	4	6	14	AN960JD416	WASHER
		4				AN960JD416L	WASHER
2	2	2		2		MS21042L3	NUT
9	5	5	4	5	14	MS21042L4	NUT

Qty -121	Qty -122	Qty -123	Qty -124	Part Number	Description
X				D350-591-121	<i>Heli-Access-Step</i> ™, Short Step – High Skid, LH
	X			D350-591-122	<i>Heli-Access-Step</i> ™, Short Step – High Skid, RH
		X		D350-591-123	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, LH
			X	D350-591-124	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, RH
1				D2351-041	STEP ASSEMBLY (HIGH-SHORT, LH)
	1			D2351-042	STEP ASSEMBLY (HIGH-SHORT, RH)
		1		D2356-041	STEP ASSEMBLY (LOW-SHORT, LH)
			1	D2356-042	STEP ASSEMBLY (LOW-SHORT, RH)
1	1	1	1	D2230-1	MOUNTING LUG
1	1	1	1	D2230-3	MOUNTING LUG
1	1	1	1	D2856-400-720	ABRASION STRIP
2	2	2	2	AN3-37A	BOLT
3	3	3	3	AN4-13A	BOLT
4	4	4	4	AN960JD10	WASHER
6	6	6	6	AN960JD416	WASHER
2	2	2	2	MS21042L3	NUT
3	3	3	3	MS21042L4	NUT

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Revision: **G**
Date: 08.10.06

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS D350-591 REV. G OR EARLIER
AND
INSTRUCTIONS OF CONTINUED AIRWORTHINESS ICA-D350-591 REV. 2 OR EARLIER
REF CANADIAN STC: SH92-6
REF FAA STC: SH967NE

For D350-591-121/-122/-123/-124/-133 steps, customers have the option of installing D2732-030 cushions under the D2230-1/-3 clamps to accommodate varying crosstube diameters and to improve fit. It is also acceptable to use longer or shorter AN4 bolts, and/or extra AN960JD416 washers under the nut to ensure 1.5 to 4 threads in safety. See Figure 1 on sheet 2 of this service instruction for reference.

For D350-591-121/-122 steps at CHG 005, D350-591-123/-124 steps at CHG 004, and D350-591-133 steps at CHG 003, the parts list of D350-591 Rev. G and ICA-D350-591 Rev. 2 is amended as follows:

ADD:

Qty -121	Qty -122	Qty -123	Qty -124	Qty -133	Part Number	Description
X					D350-591-121	<i>Heli-Access-Step</i> ™, Short Step – High Skid, LH
	X				D350-591-122	<i>Heli-Access-Step</i> ™, Short Step – High Skid, RH
		X			D350-591-123	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, LH
			X		D350-591-124	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, RH
				X	D350-591-133	<i>Heli-Access-Step</i> ™, Aft Maintenance Step
2	2	2	2	8	D2732-030	CUSHION
2	2	2	2	8	AN4-16A	BOLT

The DSI-9459-011 kit is available for customers with earlier model D350-591-121/-122/-123/-124 steps. Longer AN4 bolts are provided to fasten the clamps. The DSI-9459-013 kit is available for customers with earlier model D350-591-133 steps.

Qty -011	Qty -013	Part Number	Description
X		DSI-9459-011	Rubber Cushion Kit (for -121/-122/-123/-124 steps)
	X	DSI-9459-013	Rubber Cushion Kit (for -133 steps)
2	8	D2732-030	CUSHION
2	8	AN4-16A	BOLT

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION BRANCH DAO # 01-O-01	
APPROVED	
BY:	<i>[Signature]</i>
D. SHEPHERD (DE # 02)	
DATE:	09.06.24
CERT. NO.:	SH92-6
ISSUE NO.:	11

B	AN4-16A WAS -17A FOR -013/-133 KIT	CP	09.06.24
A	NEW ISSUE	CP	09.04.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>GP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>GP</i>		
CHECKED	<i>PL</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>N/A</i>	DSI 9459	SHEET 1 OF 2
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	OPTIONAL CLAMP MODIFICATIONS	NTS
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